

WHAT IS CLAIMED IS:

1. A method of managing a buffer random access memory, the buffer random access memory having a first portion reserved for a defect table and a second portion reserved for data caching, the method comprising:
  - determining actual memory space of the first portion of the buffer random access memory occupied by the defect table to identify unused memory space of the first portion; and
  - reallocating the unused memory space of the first portion of the buffer random access memory for use in data caching.
2. The method of claim 1, wherein determining the actual memory space of the first portion of the buffer random access memory further comprises:
  - obtaining information on a total number of defects identified on a storage media; and
  - calculating the actual memory space of the first portion of the buffer random access memory occupied by the defect table based upon the total number of defects identified on the storage media.
3. The method of claim 1, and further comprising swapping locations of the defect table and the unused memory space in the first portion of the buffer random access memory such that the unused memory space of the first portion of the buffer random access memory is closest to the second portion of the buffer random access memory reserved for data caching.
4. The method of claim 3, and prior to swapping locations of the defect table and the unused memory space in the first portion of the buffer, further comprising coding variables defined in the defect table as address dynamic changeable.

5. The method of claim 4, wherein swapping locations of the defect table and the unused memory space in the first portion of the buffer random access memory further comprising dynamically changing addresses of the variables defined in the defect table to obtain new defect table parameters.
6. The method of claim 5, and further comprising saving the new defect table parameters and new data cache parameters on a storage media.
7. The method of claim 6, wherein the storage media is a data storage disc of a disc drive data storage system, and wherein saving the new defect table parameters and new data cache parameters in reserved cylinders of the data storage disc.
8. A controller configured to implement the method of claim 1.
9. A mass storage device comprising:
  - a storage media storing a defect table and data cache parameters;
  - a buffer random access memory having a first portion reserved for the defect table and a second portion reserved for data caching, the defect table and the data cache parameters being uploaded into the buffer random access memory from the storage media; and
  - a controller operably coupled to the storage media and to the buffer random access memory, the controller configured to implement the steps of:
    - determining actual memory space of the first portion of the buffer random access memory occupied by the defect table to
    - identify unused memory space of the first portion; and
    - reallocating the unused memory space of the first portion of the buffer random access memory for use in data caching.

10. The mass storage device of claim 9, wherein the controller is configured to determine the actual memory space of the first portion of the buffer random access memory by implementing the steps of:

obtaining information on a total number of defects identified on the storage media; and

calculating the actual memory space of the first portion of the buffer random access memory occupied by the defect table based upon the total number of defects identified on the storage media.

11. The mass storage device of claim 10, wherein the controller is further configured to implement the step of swapping locations of the defect table and the unused memory space in the first portion of the buffer random access memory such that the unused memory space of the first portion of the buffer random access memory is closest to the second portion of the buffer random access memory reserved for data caching.

12. The mass storage device of claim 11, wherein variables defined in the defect table are coded as address dynamic changeable.

13. The mass storage device of claim 12, wherein the controller is configured to implement the step of swapping locations of the defect table and the unused memory space in the first portion of the buffer random access memory by dynamically changing addresses of the variables defined in the defect table to obtain new defect table parameters.

17. The mass storage device of claim 13, wherein the controller is further configured to implement the step of saving the new defect table parameters and new data cache parameters on a storage media.